ELSEVIER

Journal of Non-Crystalline Solids 184 (1995) xi–xiv

JOURNAL OF NON-CRYSTALLINE SOLIDS

Contents

Preface vii
Committees ix
Contents xi

New chalcohalide glasses from the Sb_2S_3–MXn system
L. Zan, L. Huang and C. Zhang 1
The optical properties of ZrF_4-based glasses with extended Pr^{3+} : $^1G_4 \rightarrow {}^3H_5$ fluorescence lifetimes
W.G. Jordan, A. Jha, M. Lunt, S.T. Davey, R. Wyatt and W.J. Rothwell 5
Optical properties of fluoride glasses: a review
F. Gan 9
Non-conventional spaghetti-type glasses
J. Lucas 21
High-purity chalcogenide glasses as materials for fiber optics
M.F. Churbanov 25
Chalcogenide glasses for acousto-optic devices
M. Lainé and A.B. Seddon 30
Material dispersion in optimized fluoroindate glasses
A. Soufiane, F. Gan, H. L'Helgoualch and M. Poulain 36
IR imageguide with As–S glass fibers
K. Yang, P. Wu, G. Wei and B. Yu 40
Chalcogenide glasses: a review of their preparation, properties and applications
A.B. Seddon 44
Film preparation and structure analysis of optical recording domains of amorphous Ge–Sb–Te
F. Jiang, Y. Xu, M. Jiang and F. Gan 51
Multiphonon pumping in Er^{3+} ZBLAN bulk and fibre, the first step for the photon avalanche process
F. Auzel and Y.H. Chen 57
Cadmium mixed halide glass for optical amplification at 1.3 μm
E.R. Taylor, B.N. Samson, D.W. Hewak, J.A. Medeiros Neto, D.N. Payne, S. Jordery, M. Naftaly and A. Jha 61
Zinc halide glasses with improved thermal characteristics
L.F. Santos and R.M. Almeida 68
New cadmium fluorochloride glasses
G. Zhang, M. Poulain and A. Jha 72
Design of compatible glass compositions for heavy metal fluoride fibres
R.S. Rowe, G. Rosman and C.G. Byrne 79

New high-density fluoride glasses doped with CeF_3
W. Zhou, S.W. Martin, D. Schwellenbach and J. Hauptman 84
Preparation and characterization of amorphous ZrF_4 thin films
R.M. Almeida and P.J. Morais 93
Avalanche upconversion in Tm^{3+}-doped BIGaZYTZr glass
M.F. Joubert, S. Guy, C. Linarès, B. Jacquier and J.L. Adam 98
New trends in halide glass compositions
M. Poulain 103
Influence of various divalent metal fluorides on the properties of glasses in the ZrF_4–AlF_3 system
J. Qiu, K. Maeda, A. Konishi, R. Terai and K. Kadono 109
Some comments on the thermodynamic aspects of glass formation in fluoride systems
T. Grande, S. Aasland and S. Julsrud 114
Multiphonon relaxations in chloro–fluoride glasses
J.L. Adam, M. Matecki and J. Lucas 119
Novel chalcohalide glasses in the As–Ge–Ag–Se–Te–I system
J. Cheng, W. Chen and D. Ye 124
Formation and crystallization of As_2Te_3–HgI_2 chalcogenide–halide glasses
X. Zhao, H. Yin and W. Chen 128
Properties of some oxynitride glass fibers
H. Kaplan-Diedrich and G.H. Frischat 133
Oxychloride glasses based on the TeO_2–ZnO–$ZnCl_2$ system
M.R. Sahar and N. Noordin 137
Some physical properties of new oxyfluoride glasses
R. El-Mallawany, A.H. Khafagy, M.A. Ewaida, I.Z. Hager, M.A. Poulain and M.J. Poulain . . . 141
Synthesis of fluorozirconate glasses doped with aluminium nitride and some of their properties
L. Samek and R. Pastuszak 147
High-pressure synthesis of nitride glasses
T. Grande, S. Jacob, J.R. Holloway, P.F. McMillan and C.A. Angell 151
Structural study of ion-conducting MX–K (or Rb)X–CsX–BaX_2 halide glasses (M = Li, Cu or Ag) with single X species (X = Cl, Br or I)
Y. Kawamoto, R. Kanno, M. Shojiya and K. Kadono 155
Short range ordering in transition metal fluoride glasses as shown by EPR
C. Legein, J.Y. Buzaré and C. Jacoboni 160
Room temperature synthesis of fluoride glasses
R. Lebullenger and M. Poulain 166
X-ray diffraction and molecular dynamics study of ThF_4–BaF_2–LiF glass
X. Zhao, X. Li and J. Chen 172
Structure and some physical properties in relation to average co-ordination number, $\langle r \rangle$, in TeX and TeXAs glasses
Z. Wang and Q. Chen 177
Vapour-phase deposition of rare-earth-doped PZG glasses
C. Jacoboni, O. Perrot and B. Boulard 184
New highly stabilized AlF_3-based glasses
T. Iqbal, M.R. Shahriari, G. Weitz and G.H. Sigel Jr. 190
Electrochemical purification and GFAAS analysis of heavy metal fluoride glass
S. Bao, P.J. Newman, A. Voelkel, Z. Zhou and D.R. MacFarlane 194
Tellurium halide glass fibers: preparation and applications
C. Blanchetière, K. Le Foulgoc, H.L. Ma, X.H. Zhang and J. Lucas 200

Preparation in vapour state of fluoride glass components by a chemical vapour deposition process
M. Jardin, J. Guery and C. Jacoboni 204
Resistant oxide coatings for heavy metal fluoride glasses
M. Hartmann, G.H. Frischat, K. Högerl and G.F. West 209
New lead-halide-based glass-forming systems
J. Cheng and Z. Jin 213
Preparation of a Nd^{3+}-doped fluorozirconate glass laser fiber
H. Hu, G. Yi, F. Lin, C. Qi, Y. Yu, A. Ye and F. Gan 218
Fluoride glass planar optical waveguides
C. Charron, E. Fogret, G. Fonteneau, R. Rimet and J. Lucas 222
A review of fluoride fibres for optical amplification
B.J. Ainslie, S.T. Davey, D. Szebesta, J.R. Williams, M.W. Moore, T. Whitley and R. Wyatt . . . 225
Praseodymium-doped cadmium mixed halide glasses for 1.3 μm amplification
R.F. Bartholomew, B.G. Aitken and M.A. Newhouse 229
The emission characteristics of Nd^{3+}-doped fluoride glass fiber
J. Wang, F. Gan and C. Qi 234
Improvement of gain flatness of optical fluoride fiber amplifiers for multiwavelength transmission
M. Semenkoff, M. Guibert, D. Ronarc'h, Y. Sorel and J.F. Kerdiles 240
The role of GaF_3 in high numerical aperture heavy metal fluoride fibres
R.S. Rowe, G. Rosman, C.G. Byrne, J. Javorniczky, P.J. Newman and D.R. MacFarlane 244
High erbium content heavy metal fluoride glasses
J.S. Javorniczky, P.J. Newman, D.R. MacFarlane, D.J. Booth and V. Bogdanov 249
New germanium sulfide-based glasses
Y. Meresse, G. Fonteneau and J. Lucas 254
Optical investigation of fluoride glass planar waveguides made by vapour phase deposition
O. Perrot, L. Guinvarc'h, D. Benhaddou, P.C. Montgomery, R. Rimet, B. Boulard and C. Jacoboni 257
Effects of impurities in cadmium halide glasses for 1.3 μm amplifier
S. Jordery, M. Naftaly, A. Jha and B.N. Samson 263
Properties of a matched halide glass pair for the fabrication of large numerical aperture core–cladding preform structures
A. Jha, S. Jordery and M. Naftaly 268
Sodium fluorometaphosphate glasses with high rare earth ion concentrations
M. Matecki, N. Duhamel and J. Lucas 273
Investigation of multiphonon assisted side band absorptions in rare-earth-doped halide glasses and crystals
Y. Chen and F. Auzel 278
Ultraviolet-induced permanent Bragg gratings in Ce-doped fluorozirconate glasses or optical fibres
H. Poignant, S. Boj, E. Delevaque, M. Monerie, T. Taunay, P. Niay, P. Bernage and W.X. Xie . 282
Fluorescence line narrowing spectroscopy of europium(III) ions in a fluorozirconate glass
M.T. Harrison, R.G. Denning and S.T. Davey 286
The application of Ga : La : S-based glass for optical amplification at 1.3 μm
J.A. Medeiros Neto, E.R. Taylor, B.N. Samson, J. Wang, D.W. Hewak, R.I. Laming, D.N. Payne, E. Tarbox, P.D. Maton, G.M. Roba, B.E. Kinsman and R. Hanney 292
The influence of oxygen on the oxidation state of iron in ZBLAN glasses
S. Aasland, T. Grande and S. Julsrud 297

The effects of Te, I atoms on the properties and structure of Ge–As–Se system glasses
J. Xu, R. Yang, Q. Chen, W. Jiang and H. Ye 302
Upconversion luminescence of Ga_2S_3-based sulfide glasses containing Er^{3+} ions
K. Kadono, H. Higuchi, M. Takahashi, Y. Kawamoto and H. Tanaka 309
Stability study on heating and determination of critical cooling rates of fluorozirconate glasses
F. Smektala and M. Matecki 314
Chemical and physical compatibilities of fluoride and fluorophosphate glasses
N. Rigout, J.L. Adam and J. Lucas 319
Analysis of Fe, Cu, Ni and Co in fluoride glasses and their precursors
P.J. Newman, A.T. Voelkel and D.R. MacFarlane 324
Alkali-doped heavy metal fluoride glasses studied by positron annihilation lifetime spectroscopy
A.J. Hill, P.J. Newman, J. Javorniczky and D.R. MacFarlane 329
High numerical aperture heavy metal fluoride glass combinations for single-mode optical fibres
J.S. Javorniczky, P.J. Newman and D.R. MacFarlane 336
Infrared to visible conversion in rare-earth-doped planar waveguides
M.F. Joubert, A. Remillieux, B. Jacquier, J. Mugnier, B. Boulard, O. Perrot and C. Jacoboni . . 341
Effects of oxides in cadmium mixed halide glass
J. Jiang, G. Zhang and M. Poulain 346
Fluoride glass synthesis by sol–gel process
M. Saad and M. Poulain 352
Molecular dynamics simulation of heavy metal fluoride glasses: comparison of Buckingham and BHM potentials
S. Gruenhut and D.R. MacFarlane 356

Author index 363
Subject index 368